

Serial No. 09/895234

Amendment dated April 22, 2004

Response to Office Action dated January 22, 2004

Page 4 of 15

### Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

### Listing of Claims:

1 (currently amended). A method of retrieving data from a disk for transmission over a variable network transfer rate connection, comprising:

determining a ~~{first}~~ network transfer rate of ~~{a network}~~ the variable network transfer rate connection between a first client and a server ~~{and determining a second network transfer rate between a second client and a server wherein the first and second network transfer rates are different}~~;

responsive to data requests received by the server from the first ~~{and second clients}~~ client via ~~{corresponding network connections}~~ the variable network transfer rate connection, retrieving a first portion of the requested data from the disk;

initiating transmission of the first portion of data to the first ~~{and second clients}~~ client via the ~~{network}~~ variable network transfer rate connection;

calculating the time required to transmit the first portion of data to the first ~~{and second clients}~~ client based upon the ~~{first and second}~~ determined network transfer ~~{rates, respectively}~~ rate; and

determining when to retrieve {retrieving} a subsequent portion of the requested data from the disk and transmit {transmitting} the subsequent portion to the first ~~{and second clients}~~ client based, at least in part, on whether the calculated time ~~{for each client}~~ is expired ~~{wherein the subsequent portion is transmitted to the first and second clients at different times}~~.

2 (currently amended). The method of claim 1, wherein the variable network transfer rate connection is further characterized as a TCP/IP connection and wherein determining the network transfer {rates} rate comprises determining the network transfer rate of {a TCP} the TCP/IP connection [between the respective client and the server].

3 (currently amended). The method of claim 1, wherein ~~{retrieving a first portion of the requested data comprises retrieving data from a first block of the disk}~~ determining the network

Serial No. 09/895234

Amendment dated April 22, 2004

Response to Office Action dated January 22, 2004

Page 5 of 15

transfer rate of the variable network transfer rate connection includes determining the network transfer rate of the variable network transfer rate connection each time a data request is received.

4 (currently amended). The method of claim 1, wherein determining when to ~~retrieve a~~ retrieve the subsequent portion of the requested data from disk includes delaying retrieval of the subsequent portion until the calculated time is expired to minimize the server system memory required to complete the file request.

5 (original). The method of claim 1, wherein determining when to retrieve the subsequent portion of the requested data includes determining when to retrieve the subsequent portion based at least in part on the distance between the current head position and the disk location of the subsequent portion of data.

6 (original). The method of claim 1, wherein determining when to retrieve a subsequent portion of the requested data from disk includes monitoring the position of the disk head while the first portion of data is being transmitted to the client.

7 (original). The method of claim 6, further comprising determining the disk location of the subsequent portion of data associated with the first request and determining the disk location of a portion of data associated with a second file request.

8 (original). The method of claim 7, further comprising retrieving the portion of data associated with the second file request if the data is closer to the current head position than the data associated with the subsequent portion of the first file request.

9 (original). The method of claim 8, further comprising retrieving the subsequent portion of data associated with the first file request after the calculated time expires.

10 (currently amended). A computer program product comprising a computer readable medium containing computer executable instructions for retrieving data from disk comprising:

computer code means for determining a first network transfer rate of a ~~{network}~~ variable network transfer rate Internet connection between a first client and a server ~~{and determining a second network transfer rate between a second client and a server wherein the first and second network transfer rates are different};~~

computer code means for retrieving a first portion of the requested data from the disk responsive to a data ~~{requests}~~ request received by the server from the first ~~{and second clients}~~ client ~~{via corresponding network connections};~~

computer code means for initiating transmission of the first portion of data to the first ~~{and second clients}~~ client via the ~~{network}~~ variable network transfer rate connection;

Serial No. 09/895234

Amendment dated April 22, 2004

Response to Office Action dated January 22, 2004

Page 6 of 15

computer code means for calculating the time required to transmit the first portion of data to the first ~~{and second clients}~~ client based upon the ~~{first and second}~~ determined network transfer ~~{rates, respectively}~~ rate; and

computer code means for determining when to retrieve ~~{retrieving}~~ a subsequent portion of the requested data from disk and ~~{transmitting}~~ transmit the subsequent portion to the first ~~{and second clients}~~ client based, at least in part, on whether the calculated time ~~{for each client}~~ is expired ~~{wherein the subsequent portion is transmitted to the first and second clients at different times}~~.

11 (currently amended). The computer program product of claim 10, wherein the code means for determining the network transfer ~~{rates}~~ rate comprises code means for determining the network transfer rate of a TCP connection between the respective client and the server.

12 (original). The computer program product of claim 10, wherein the code means for retrieving a first portion of the requested data comprises code means for retrieving data from a first block of the disk.

13 (original). The computer program product of claim 10, wherein the code means for determining when to retrieve a subsequent portion of the requested data from disk includes code means for delaying retrieval of the subsequent portion until the calculated time is expired to minimize the server system memory required to complete the file request.

14 (original). The computer program product of claim 10, wherein the code means for determining when to retrieve the subsequent portion of the requested data includes code means for determining when to retrieve the subsequent portion based at least in part on the distance between the current head position and the disk location of the subsequent portion of data.

15 (original). The computer program product of claim 10, wherein the code means for determining when to retrieve a subsequent portion of the requested data from disk includes code means for monitoring the position of the disk head while the first portion of data is being transmitted to the client.

16 (original). The computer program product of claim 15, further comprising computer code means for determining the disk location of the subsequent portion of data associated with the first request and computer code means for determining the disk location of a portion of data associated with a second file request.

17 (original). The computer program product of claim 16, further comprising computer code means for retrieving the portion of data associated with the second file request if the data is closer to the current head position than the data associated with the subsequent portion of the first file request.

18 (currently amended). A data processing system suitable for use as a web server, comprising:

Serial No. 09/895234

Amendment dated April 22, 2004

Response to Office Action dated January 22, 2004

Page 7 of 15

~~{at least one disk;}~~

~~means for {a server connected to a network and having access to the}~~ accessing disk storage connectable to the web server {server, wherein the server is further connected to a client via} and means for establishing a [TCP] variable network transfer rate connection with a client system via the Internet;

~~{wherein the system includes;}~~

~~{computer code}~~ means for determining the network transfer rate of ~~{a network}~~ the variable network transfer rate connection between {a} the client and {a} the web server;

~~{computer code}~~ means for retrieving a first portion of ~~{the requested data}~~ a file from the disk responsive to a {data} request for the file received by the web server from the client ~~{via a network connection};~~

~~{computer code}~~ means for ~~{initiating transmission of}~~ transmitting the first portion of {data} the file to the client via the {network} variable network transfer rate connection;

~~{computer code}~~ means for calculating the time required to transmit the first portion of ~~{data} the file~~ to the client based upon the network transfer rate; and

~~{computer code}~~ means for determining when to retrieve a subsequent portion of the requested ~~{data} file~~ from the disk storage based, at least in part, on whether the calculated time is expired {including code means for monitoring the position of the disk head while the first portion of data is being transmitted to the;

~~computer code means for determining the disk location of the subsequent portion of data associated with the first request and computer code means for determining the disk location of a portion of data associated with a second file request; and~~

~~computer code means for retrieving the portion of data associated with the second file request if the data is closer to the current head position than the data associated with the subsequent portion of the first file request}.~~

19 (currently amended). The system of claim 18, wherein the {code} means for retrieving a first portion of the requested ~~{data} file~~ comprises {code} means for retrieving data from a first block of the disk.

20 (currently amended). The system of claim 18, wherein the {code} means for determining when to retrieve a subsequent portion of the requested data from disk includes {code} means for delaying retrieval of the subsequent portion until the calculated time is expired to minimize the server system memory required to complete the file request.

*Serial No. 09/895234*

*Amendment dated April 22, 2004*

*Response to Office Action dated January 22, 2004*

*Page 8 of 15*

21 (currently amended). The system of claim 18, wherein the {code} means for determining when to retrieve the subsequent portion of the requested data includes {code} means for determining when to retrieve the subsequent portion based at least in part on the distance between the current head position and the disk location of the subsequent portion of data.

22-24 (canceled).

25 (new). The system of claim 18, wherein the means for determining when to retrieve a subsequent portion of the requested data from disk includes means for monitoring the position of the disk head while the first portion of data is being transmitted to the client.

26 (new). The system of claim 25, further comprising means for determining the disk location of the subsequent portion of data associated with the first request and means for determining the disk location of a portion of data associated with a second file request.

27 (new). The system of claim 26, further comprising means for retrieving the portion of data associated with the second file request if the data is closer to the current head position than the data associated with the subsequent portion of the first file request.